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(54) Solar tile for producing hot water

(57) The claims relate to thermal solar panels
for producing hot water.

The further development of the currently
known solar panels is characterized in that

a) the individual solar panels are the size of
roofing tiles customary in the trade and

b) are constructed such that they are
compatible with the already present roof tiles
or concrete roofing tiles and can therefore be
installed in the roof in their place.

Description

Solar tile for producing hot water

It is generally known to fit solar heating units on roofs of buildings in order to produce hot water. The solar panels can basically be installed in two versions: the panels can a) be mounted with corresponding fixings and devices on the already present roof tiles or concrete roofing tiles (hard roofing) or b) fitted direct into the roof in their place. In the case of the mounting option under a) considerable costs are incurred due to the expensive mounting process and substantial high subsequent costs in the case of repairs. In addition, this kind of mounting does not permit a good visual integration into the roof in question. Although a better visual appearance is achieved with the mounting option under b), here too there is no satisfactory solution from the visual point of view, due to the size difference between solar panels and the respective roof tiles or concrete roofing tiles. In addition, the transitions from solar panels to the abovementioned hard roofing must be specially sealed, as there is no compatibility between the two. As, in both cases, the solar panels customary in the trade are clearly larger than individual roof tiles or concrete roofing tiles, a major financial outlay results in the event of damage.

The invention referred to in the claims is based on the problem of eliminating the abovementioned disadvantages of the solar units currently available in the trade.

This problem is solved by the features listed in the claims:

The use of solar tiles as described in the claims, instead of conventional solar panels, results in the following advantages:

1. Due to complete compatibility with the variants available in the trade of the abovementioned hard roofing, mounting is easier to carry out and clearly more favourable.
2. In the case of repair work, only individual solar tiles need to be replaced, which can be carried out simply, as they can be laid and removed like the usual roof tiles or concrete roofing tiles.

3. In addition to the reduced outlay on labour and resultant cost savings, the visual impression in the case of solar units is clearly improved.
4. In the case of first-time installation or later extensions, the consumer or owner is offered greater design possibilities with regard to the surface area of the unit.

In an advantageous design of the invention, the substructure and frame of the solar tile are made from polyurethane foam or a similar material suitable for insulation (additional insulation).

An embodiment of the invention is shown in the drawing and is described in more detail in the following.

Figure 1 shows an absorber (1) made from copper or other suitable absorber material with water inlet (2) and outlet (3).

Figure 2 shows the panel container made of polyurethane foam or a similar material suitable for insulation. The panel container is shaped so that it is the same as the profile of the abovementioned hard roofing, and can therefore be incorporated into the roof instead of a roof tile or concrete roofing tile, and performs the functions of the abovementioned hard roofing, such as for example water run-off and sealing. On the topside of the panel container there is a corresponding recess (4) for receiving the absorber (1). For the absorber inlet (2) there is at the top of the panel container (insulation) (6) a passage (5). On the opposite side there is a fairly large stamped-out section, through which the absorber outlet tube (3) passes.

Figure 3 shows the panel container (6) with absorber (1) fitted.

Figure 4 shows the connection of two panels. The two tube ends are joined by a heat-, cold- and UV-radiation-resistant and if possible flexible connection (preferably a plug-in connection), in order to make it possible to replace individual panels.

The panel is sealed at the top by a glass plate (7) with the same properties as in panel units customary in the trade (temperature- and weather-resistance, smallest possible

reflection etc.). The glass plate projects approximately ten centimetres above the lower edge of the solar tile. This produces an overlap with the subjacent panel, thus guaranteeing secure water run-off.

Claims:

The claims relate to thermal solar panels for producing hot water.

The further development of the solar panels currently known is characterized by the fact that

- a) the individual solar panels are the size of roofing tiles customary in the trade and
- b) are constructed such that they are compatible with the already present roof tiles or concrete roofing tiles and thus can be incorporated in the roof in their place.

DRAWINGS

Fig.1

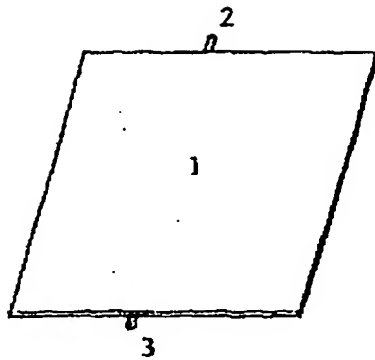


Fig.2

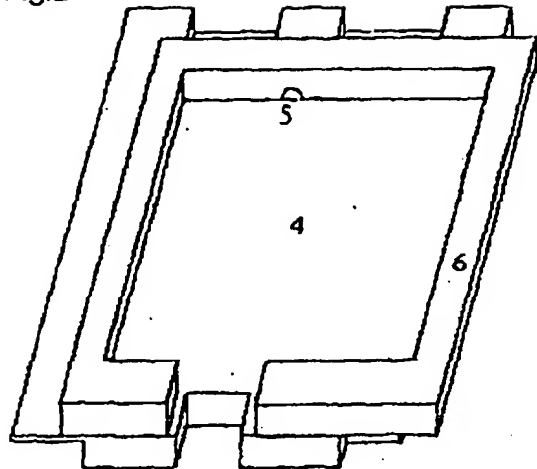


Fig.3

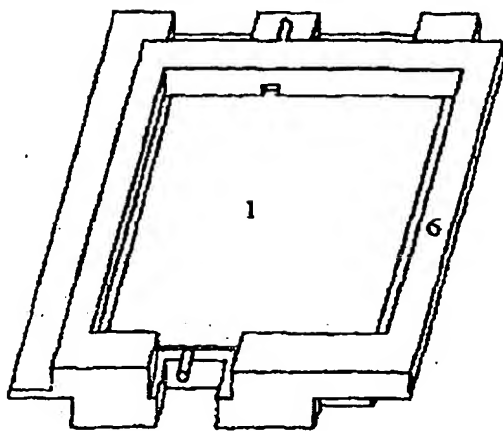
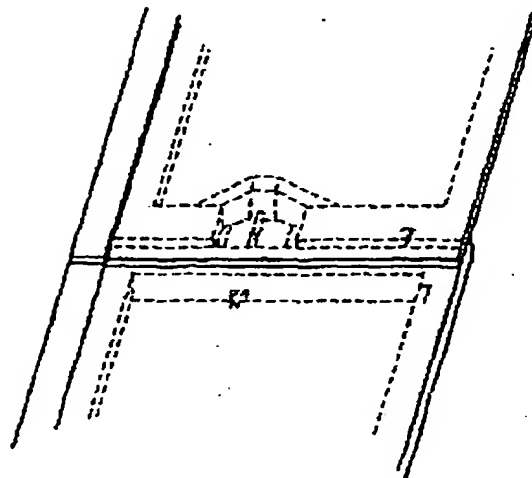


Fig.4



1. *Randbleche 1436* (page 34, para. 3, line 2 of the German): This number should be 4136. The English follows the German (page 26, para. 2, line 1).
2. *Kammerfolien* (page 39, para. 3, last line of the German): We have been unable to confirm an English translation for this term. We think that a kind of compartmentalized foil or film is meant here and have translated it as *compartment foil* (page 29, para. 2, penultimate line).
3. *ermöglicht* (page 43, para. 1, line 8): This verb, which is in the singular here, belongs to the plural nouns *Abdeck- und Trägerplatten* on line 6 of this paragraph and thus should also be in the plural. The English follows the German (*permits*: page 32, para. 2, line 4).